

THE CENTRAL PYRENEAN PIEDMONT
OF FRANCE

HENRY MADISON KENDALL

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THOUGH the Aquitaine Basin (Map 22)¹ of southern France is commonly regarded as one of the major geographic units of the European continent,² it can in no way be thought of as an undifferentiated lowland of uniform landscape. Morphologically, it is distinctly set apart by Brittany and the Massif Central on the north and east, by the Atlantic Ocean on the west, and by the high rampart of the Pyrenees on the south. One opening to the north, the Gate of Poitou (Poitiers), and one to the southeast, the Gate of Carcassonne, break through the otherwise well-defined rim of this saucer of land, half-covered by the Atlantic Ocean. In spite of these outlets, the land looks westward to the open ocean, whence come the rain-bearing winds which make it well watered. Some of its area is without a dense population and is admirably adapted to pastoral pursuits. Other portions with a greater density of population have characteristics eminently fitted to agriculture. It is not a land of industry, for it lacks the natural resources upon which modern industry is based. It is dominantly rural, though its major cities are born of the importance of commerce. From this point of view the Aquitaine Basin is a clearly recognizable unit. When detail is examined, however, the variety of landscape expression becomes evident, and sectional differences assume paramount importance.

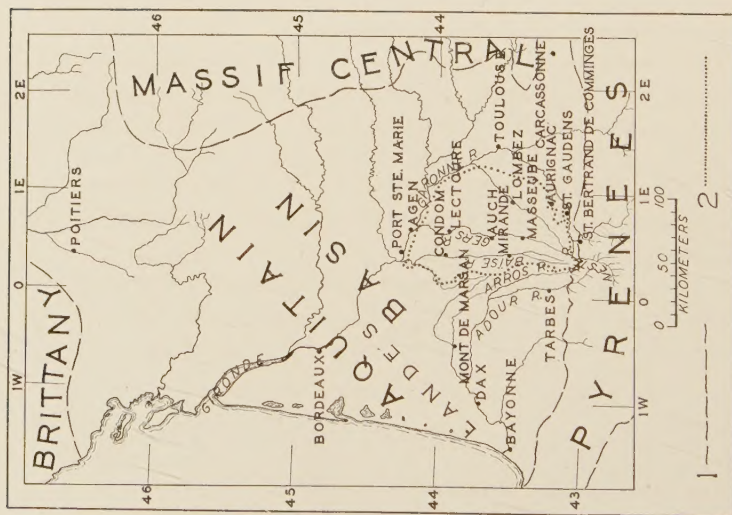
One of the group of tiles which, placed together, make up the mosaic of landscape of the whole Aquitaine Basin is the Central Pyrenean Piedmont. It is known by a variety of *pays*³ names, of

¹ Map 22 shows place names mentioned in the text. No further reference to this map will be made.

² Vidal de la Blache, Paul, *La France* (Hachette, Paris, 1908); De Martonne, E., *Les Régions géographiques de la France* (Flammarion, Paris, 1921); Fèvre, Joseph, and Hauser, Henri, *Régions et pays de France* (Alcan, Paris, 1909).

³ Gallois, L., *Régions naturelles et noms de pays* (Colin, Paris, 1908). See particularly Chapters I, II, XI, and XII.

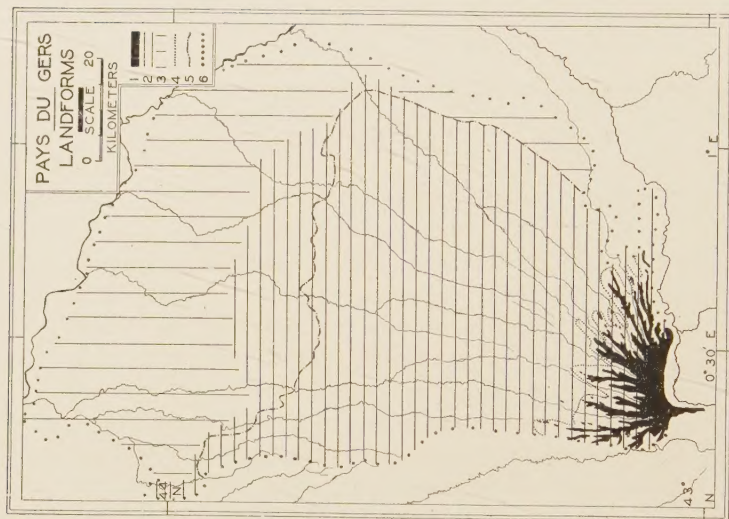
A *pays* is an area which is popularly thought of in France as one of essential



MAP 22

Map 22. Southwestern France. Pays du Gers

Map 23. Based in part on a map by L. A. Fabre, "Le Front nord des Pyrénées centrales et les hautes vallées gasconnes," on a scale of 1:200,000, in *La Géographie*, 11 (1905), Plate 3. Explanation of symbols: 1, undissected surface of the plateau of Lannemezan; 2, zone of asymmetrical valleys; 3, zone of mature interfluvial and mature valleys; 4, northern and eastern limit of youthful valleys; 5, northern and eastern limit of youthful interfluvial valleys; 6, limits of the Pays du Gers



MAP 23

Map 23. Pays du Gers. Explanation of symbols: 1, limits of major physiographic regions; 2, limits of the

which the collective *Pays du Gers* seems well suited, even though this is an extension of the usual sense in which that name is used. *Pays du Gers* and Central Pyrenean Piedmont of France may be used interchangeably.

THE SETTING

The *Pays du Gers* forms a distinct geographic region, though, because of its considerable area, which is about 8,500 square kilometers, it presents noticeable variety of detail throughout. It is set off clearly on three sides, but to the west it blends with other portions of the piedmont. To the south it is cut off by the Pyrenees and the valley of the Neste⁴ while to the east and north it is delimited by the ribbon-like plain of the Garonne. To the northwest lies the expansive, low, sandy plateau of the Landes.⁵ The limits have been recognized not on the basis of surface character alone, but from the aspect of the surrounding land as contrasted with that of the land inclosed within the bounds mentioned.

Surface configuration and hydrography

There is a continuous gradation of surface and drainage forms from the Pyrenean front to the Garonne Valley. Three zones of combined forms may be recognized. They are: first, the nearly level plateau surface with incipient drainage; second, the section of asymmetrical valleys⁶ with asymmetrically placed major streams and youthful interfluves grading northward into mature ones; and, third, the zone of late mature valleys with widely meandering streams

unity in both the forms of the fundament and those of the occupance. In many instances, though not invariably, this concept holds true. Pays are of several orders of magnitude as, for example, in Condomois, which is part of Haut Armagnac. The latter is, in turn, part of the larger pays of Armagnac and also part of the *Pays du Gers*. The limits of a pays are not always determined by exact criteria but, rather, by common usage. The names of many of the pays of France are so well recognized that their usage technically as well as popularly is common.

⁴ Sorre, M., *Les Pyrénées* (Colin, Paris, 1928), pp. 138-141.

⁵ De Launay, L., *Géologie de la France* (Colin, Paris, 1921), p. 291.

⁶ The cause of asymmetry of the valleys of the Pyrenean piedmont has been a much-discussed problem for which no completely satisfactory solution has as yet been offered. See Laurant, Gustave, "L'Armagnac et les pays de Gers," *Ann. de géog.*, 20: 145. 1911; Fabre, L. A., "La Dissymétrie des vallées et la loi dite de De Baer, particulièrement en Gascogne," *La Géog.*, 8: 291-306. 1903; Réclus, É., *La France*, Vol. II in *Nouvelle géographie universelle* (Hachette, Paris, 1877).

separated from one another by belts of maturely dissected inter-stream spaces.

A broad expanse of nearly level land stretches northward from the front of the Central French Pyrenees (Map 23; Pl. LXXXI, Fig. 1). This is the plateau of Lannemezan, all that remains of a formerly more extensive mass of fluvio-glacial detritus.⁷ The apex of this deposit is on the slope of the mountain which forms the left bank of the upper Neste Valley. From that point the land descends gradually and spreads out like a fan northward. Numerous streams, all contributing to the volume of the Garonne except a few which bathe the western edge of the mass, have cut their way headward into the fan, so that the present northern edge of the plateau is a succession of narrow, flat-topped, finger-like ridges separated from one another by steep-sided, V-shaped valleys (Pl. LXXXI, Fig. 2).

These finger-like remnants extend as much as thirty kilometers from the apex of the fan (Map 23). With increasing distance from the mountains they become narrower, and the valleys between them become wider and less notched. They are asymmetrical in cross-section with, usually, steep eastern walls and gentle western ones. Their floors are filled with alluvium, both ancient and recent. They are definitely aggraded.

Beyond the latitude of Auch there are few youthful remnants of the upland surface. Northward the country appears to be made up of several lines of well-rounded hills. The valleys which separate them present the characteristics of late maturity or old age. They remain asymmetrical somewhat farther to the north, however.

As the Garonne River is approached, the valleys become narrower and the interfluves are more prominent. They break away sharply to the Garonne lowland over two levels of terraces,⁸ which are well defined except where the river is sapping its southern valley side. All the affluents of the Garonne on its left bank cut trenchlike valleys through these terraces. Though these valleys are not wide or deep, they produce a surface which is dissimilar to that in the hilly land to the south. This surface marks a distinctive change of landscape between the Pays du Gers and the plain of the Garonne.

⁷ Fabre, L. A., "Le Sol de la Gascogne," *La Géog.*, 11: 257-284, 343-358, 413-434. 1905.

⁸ Chaput, E. "Recherches sur l'évolution des terrasses de l'Aquitaine," *Bull., Soc. d'his. nat. de Toulouse*, 56: 17-100. 1927.

Only along its northern edge is surface water to be seen on the plateau of Lannemezan. The main body of the upland is not fretted with valleys, nor are there any lakes or marshes on it. In some places the water table approaches the surface, and, here and there, temporary boggiess may occur. The northern edge is quite different. Here the headward cutting of the streams forms a very deeply indented surface, both vertically and horizontally. It is the streams and their valleys that limit the plateau proper. The upper portions of the streams form an integral part of the surface in that they are the vital force which controls this limit, now more or less fixed by the intervention of man.⁹ Beyond this limit there is a different complex.

Almost throughout the zone of outstandingly asymmetrical valleys the steep right banks of the streams and the gentle, though latitudinally serrated surface of the left banks, are separated by the flat valley floors of ancient and recent alluvium into which the present rivers are cutting (Pl. LXXXI, Fig. 3). In a few places the left bank is the steep one while the right bank is gentle. The relief of any one of the three surfaces is the result of the carving of the tributaries, except the channels of the main streams. The secondary streams have not progressed to the erosional stage of the major rivers and have cut only V-shaped valleys. They produce on any one surface a washboard effect. This roughening is found almost without exception on the surfaces of gentle slope. The few torrential rivulets of the steeper slopes¹⁰ cut ravines which advance headward rapidly and indent the sky line of the valley sides to a greater depth than those of the opposite banks.

In the lowest, or northernmost, zone there is found a country which, if one looks eastward or westward, presents the appearance of an ocean breaking against a shore. Northward or southward the likeness is not lost; it merely appears, from the valleys, as though one were in a trough between two waves, or, from the interfluves, as though one were on the crest of a wave. Water has worked upon the land to reduce it until a veritable labyrinth of rivers, brooks, and rills separates isolated, gently rounded hills (Pl. LXXXII, Fig. 1).

⁹ Cavailès, H., "La Houille blanche dans les Pyrénées françaises," *Ann. de géog.*, 28: 450. 1919.

¹⁰ Fabre, L. A., "Sur le déplacement vers l'est des cours d'eau qui rayonnent du Plateau de Lannemezan," *Compte rendu Acad. sci. de Paris*, 127: 204. 1898.

The stream pattern corresponds to the zonal arrangement of surface forms (Map 24). The rivers flow in a radial pattern from the plateau of Lannemezan in a general northward direction to their confluences with the Garonne. Near their headwaters they follow



MAP 24. The Pays du Gers and surrounding area. Based on
Carte de France à 1 : 200,000 — 1927 édition

rectilinear courses and have few tributaries. Farther northward the number of tributaries, particularly on the left banks of the main streams,¹¹ is increased and the pattern is comblike. In the northernmost zone the number of small tributaries is decreased while that of large tributaries is increased. There the pattern is dendritic in detail. Throughout their whole length the radial arrangement of the streams from the plateau is fundamental. Other detailed patterns

¹¹ Fabre, *op. cit.*, p. 203.

which are encountered are amplifications of this or are combinations of it with others.

The reaction of the streams to the climatic régime can be noted clearly. The period of highest water is usually during April and May, and it is followed by a period of extreme dryness. In July and August there is very little water in the major streams, and many of the smaller ones are completely dry (Pl. LXXXI, Fig. 3). From September onward there is a gradual increase in flow until a maximum, which is only slightly lower than that of early summer or late spring, is reached in December. After this there is a slight decrease until the end of January, when increased flow is again noticeable.

More startling than the seasonal changes are the changes induced by short periods of heavy rainfall. The effectiveness of storms is due, in part at least, to the impermeability of the soil near the headwaters of the streams and on the steeper slopes.¹² The reaction of the streams to sudden storms has long been noted.¹³ A heavy rain of a few hours' duration produces a flooding of the flat valley floors of any of the major valleys. Evidences of human attempts at protection from these sudden floods, such as the retaining walls which line the Baïse at Condom, bear witness to the rapidity with which the streams answer to the changes in weather (Pl. LXXXII, Fig. 2).

Since the construction of the canal along the edge of the plateau of Lannemezan there have been fewer disastrous floods at the high-water periods, and the severity of the droughts has been considerably lessened,¹⁴ but the regimen of the rivers has been very little affected. Their flow bears little relationship to the snow accumulations of the Pyrenees and can be more completely related to the rainfall régime of the Aquitain Basin as a whole.¹⁵ There is variability throughout the basin, and the amounts of water in the various rivers decrease relatively as one proceeds eastward. The regimen does not vary, however.

¹² Lemoine, Georges, "Essai sur l'hydrométrie du bassin de la Garonne," *Ann. de géog.*, 5: 368. 1895-96.

¹³ One of the earliest accounts is included in Venatius Fortunatus, "De Egircio flumine," *Venance fortunat*, translated by Charles Nisard and Eugène Rittier (Firmin-Didot, Paris, 1887), pp. 58-59.

¹⁴ Cavaillès, *loc. cit.*

¹⁵ Lemoine, *op. cit.*, p. 371; Angot, Alfred, "Régime pluviométrique de la France (Deuxième partie. Régions sud-ouest et sud)," *Ann. de géog.*, 27: 1-27. 1919.

Climate

The climate of the Pays du Gers is that which is found typically a short distance inland from the west coasts of continents in the middle latitudes. Though it shows a transitional character between marine, continental, and mountain climates,¹⁶ there is a normal marine modification of maxima and minima of temperature and rainfall. There are no periods of extremes of heat or cold, and exceptional wetness or drought is not general. The position of the Pays du Gers, open as it is to the Atlantic and the Mediterranean winds, but shut in to the south by the Pyrenees, is the dominant feature of the local climatic control.

The climatic statistics for Auch¹⁷ may be taken as typical of the whole region. The temperature is given in degrees Centigrade and the rainfall in millimeters. They are as follows:

	J.	F.	M.	A.	M.	J.	J.	A.	S.	O.	N.	D.	Year
Temperature....	4.0	6.3	8.2	10.4	14.7	17.2	19.4	19.9	17.1	13.0	8.0	6.0	12.0
Precipitation....	53	42	52	73	77	75	50	47	58	58	54	50	689.0

Soil

The soil, as recognized in its climatic soil group by Agafonoff,¹⁸ is of the Brown Forest type.¹⁹ Well-developed profiles are to be found in only a few places. In general, the soils of the steep eastern valley sides are being constantly removed by sapping and gullyng as well as by soil creep. Consequently, whatever profile might have been developed is not now visible in its entirety. On the gentle western valley sides the covering of alluvium masks whatever development there has been. Under the mask it is possible to make out poorly developed profiles. On the valley floors recent alluvium,

¹⁶ In terms of the Köppen classification the type is Cfb. For criteria see Köppen, W., *Die Klimate der Erde* (De Gruyter, Berlin and Leipzig, 1923), particularly pp. 120-121, 155-157, 262-267. In terms of the Thornthwaite classification it is BB'r. For criteria see Thornthwaite, C. W., "The Climates of North America according to a New Classification," *Geog. Rev.*, 21: 633-655. 1931. See also a map of the climates of the world prepared and distributed by C. W. Thornthwaite at the annual meeting of the Association of American Geographers held at Ypsilanti, Michigan, in December, 1931.

¹⁷ Bernhard, Hans, *Landbauzonen, ländliche Entvölkerung und landwirtschaftliche Einwanderung in Frankreich, mit besonderer Berücksichtigung der schweizerischen Ansiedlung in Südwestfrankreich* (Kümmerly & Frey, Bern, 1927), pp. 97, 99.

¹⁸ Agafonoff, V., "Les Types de sols de France," *Annales de la science agromique française et étrangère*, 2: 97-120. 1928.

¹⁹ See Stremme, H., *Allgemeine Bodenkarte Europas* (Danzig, 1927).

which is being added to constantly, prevents the formation of distinct horizons. Only in the undissected remnants of the plateau of Lannemezan have the soil-forming processes gone on undisturbed for a time sufficiently long to permit the formation of horizons which correspond to those by which the Brown Forest soil may be recognized. Even here the influence of parent material appears to remain.

Vegetation

The region lies within the belt of mixed hardwood forest, though very near its equatorward margin.²⁰ The beech family, represented dominantly by numerous oaks, constitutes the remnants of woodland left at present (Map 24). In view of the position of the area as regards climate and soil, it may be said that this family of trees was the most common in the past. Where the original cover has been removed and the land is not under cultivation, the forest returns slowly. Partly as a result of this, the valley bottoms are now dominantly grass-covered, with fringes of trees along the water courses (Pl. LXXXII, Fig. 3). The surface of the plateau of Lannemezan is now moorland (Pl. LXXXI, Fig. 1), though its original cover was probably similar to the present woodland elsewhere throughout the region.

In respect to the trees present the area is transitional between the Mediterranean and the oceanic categories of Gaussen.²¹ Three types of deciduous oaks (*Quercus pedunculata* Ehrh., *Q. Robur* Willd., and *Q. pubescens* Willd.)²² are dominant, though ironwood (*Carpinus Betulus* Tourn.), chestnut (*Castanea vulgaris* Link), maple (*Acer campestre* L.), sycamore maple (*Acer pseudoplatanus* L.), black locust (*Robinia pseudo-acacia* L.), hazel (*Corylus Avellana* L.), and hawthorn (*Crataegus oxyacantha* L.) are also common trees throughout. The evergreen oak (*Q. Ilex* L.), the cork oak (*Q. Suber* L.), and the olive (*Olea europaea* L.), suggesting westward extension of the Mediterranean type, are not numerous, but all of them exist

²⁰ A careful, though brief, statement of the present detailed character and distribution of the vegetation of the southeastern part of the area is included in Gaussen, H., *Végétation de la moitié orientale des Pyrénées* (Lechevalier, Paris, 1926), pp. 348-368.

²¹ *Op. cit.*, p. 348.

²² All specific names used are those listed in Mouillefert, P., *Traité des arbrisseaux*, Part I, Librairie des Sciences Naturelles (Paris, 1892-1898). American usage has been followed with respect to the capitalization of specific names.

even beyond the western boundary of the Pays du Gers. The Scotch pine (*Pinus sylvestris* L.) occurs quite frequently in areas of sandy soil. Fir (*Abies pectinata* DC.), spruce (*Picea excelsa* Link), larch (*Larix europaea* DC.), and beech (*Fagus sylvatica* L.) add a more northerly character to the woods in the few localities in which they occur.

Along the stream courses willow (*Salix alba* L., *S. amygdalina* L., and *S. viminalis* L.), alder (*Alnus glutinosa* Willd.), and several varieties of poplar (*Populus nigra* L., *P. tremula* L., and *P. alba* L.) form regular dense fringes. Other than in these fringes trees occur only in hedgerows on the valley floors. Prairies and meadows, interrupted by a few cultivated fields, make up the remainder of the covering. As one proceeds southward toward the plateau of Lannemezan, the grasslands of the valleys are less extensive (Pl. LXXXIII, Fig. 1). They finally give way to brush or deciduous oak cover.

The plateau and its finger-like extensions are fringed with this oak woods, which ceases abruptly near the 600-meter contour. On the plateau the vegetation is moor, except for a few scattered areas of oak woods (Pl. LXXXIII, Fig. 2). Furze (*Ulex nanus* Sm. to the west and *U. europaeus* L. to the east) and heather (*Calluna vulgaris* Salisb.) are dominant on this moorland, though two of the heaths (*Erica tetralix* L. and *E. vagans* L.) are found in the association. Their existence in place of a forest cover is a cultural matter. The continued pasturage of sheep on the plateau has done much to make natural reforestation ineffective.²³

Originally the Pays du Gers was nearly completely forested, with occasional grassy patches along the streams.²⁴ The exceptions to the forest cover were edaphic and not climatic. The present state of the forest covering is an expression of the use which man has made of the area and not of the inherent fundamental characteristics.

The base of human occupance

The complex of these features of the fundement make up the base for man's activity in the area. The Pays du Gers is definitely set off

²³ Fabre, L. A., "Les Landes de Lannemezan," *Rev. de Comminges*, 13: 260. 1898.

²⁴ Laurant, Gustave, "Armagnac et pays du Gers," *Rev. de Gascogne*, 53d year, New Series, 12: 453. 1912; Fabre, L. A., "L'Érosion pyrénéenne et les alluvions de la Garonne," *Ann. de géog.*, 11: 38. 1902.

from surrounding regions and in this respect is typical of the whole northern piedmont of the Pyrenees. It is the largest of the many fans which spread out from the mouths of the Pyrenean valleys into the central declivity of the Aquitain Basin. For this reason its parts are more clearly defined than similar features of the other fans. It occupies a central position with reference to the Pyrenean front, and appears, therefore, to be the culmination of all the sedimentary deposits of the basin. It is a very prominent part of the Aquitain region.

The land surface is fundamental. The original feature of a cone of detrital material piled up at the base of a mountain range is essentially unchanged. From a valley worn deep by glacial action it extends, gradually decreasing in elevation, to the median line of the basin where flows the Garonne River. Back from this broad stream tributaries have eaten radially disposed valleys into the sides of the cone. They have all but removed the original surface, leaving, to the north, wide valleys with hilly interfluvies, and, farther south, narrowing asymmetrical valleys with flat-topped interfluvies, until finally the V-shaped valleys which scallop the edge of the plateau of Lan-nemezan are reached, and the remnant of the old surface, little disturbed, is attained. This is the base into which the ultimate roots of human life in the region are grown, and from which have sprung the fruits of that occupation.

POPULATION

Human beings have lived in the Pays du Gers for a very long period of time. The earliest occupation of the area about which anything is known was during the Paleolithic period. Aurignac, the type station of the Aurignacian subdivision of the Paleolithic,²⁵ lies near the southeastern edge of the region. Neolithic remains, both at Aurignac and at other points throughout the area, can lead only to the conclusion that human occupation has been continuous since early Paleolithic times.²⁶ The evidences of early occupation are not areally important in the present landscape, however.

Occupation in historic times has continued to mold the landscape

²⁵ Burkitt, M. C., *Prehistory* (University Press, Cambridge, 1925), p. 11.

²⁶ Astre, Gaston, "Débris squelettiques d'une race néolithique de petite taille découverts à Vic-Fezensac," *Bull. Soc. d'hist. nat. de Toulouse*, 52: 117-132. 1924.

into its present form. It is known that the Phoenicians had reached the Aquitainian coast in the fifteenth century B.C.,²⁷ and that they had trade relations with the people of the interior as well as with those along the coast. The land was well known to the Greeks and is briefly mentioned by Strabo.²⁸ It came under the influence of Rome and existed as a separate province.

Many of the towns are at least of pre-Roman date of establishment, and they indicate the almost static position of life within the area since that time. It was well known then as an agricultural area, and it still remains so in essence. It has been many times contested for by Greeks, Romans, Goths, Moors, Spanish, and English, and only in relatively recent times has it come under French domination. The continual influx of cultural elements has not caused any sudden and emphatic change in the character of the occupance. Rather, various items of all the cultures have been fused into one mass, which makes up the present cultural phase of the landscape. The effect of these culture infusions may be measured in terms of the nature of the population and its distribution, the pattern of circulation forms, and the use of the land, but to estimate the part which belongs to each of the long series of cultures would be impossible, for they have been completely blended.

The nature of the population

The population of this part of France is very uniform in type. The inhabitants during the pre-Christian era were of the Iberian group of peoples,²⁹ and, despite the fact that invasions of other peoples have been recurrent, this fundamental stock has been little changed.

Successive waves of people, constantly overriding western Europe, plundered the land, but, with the exception of the Vascon influx from Spain, the invaders did not settle in considerable numbers. The Vascons were Iberian peoples, and consequently the character of the inhabitants of the region was not greatly altered when they came. For all others the Pays du Gers proved simply an obstacle to be

²⁷ Guilbert, Aristide, *Histoire des villes de France* (Claye, Paris [1844-48?]), II: 203.

²⁸ *Geography*, translated by Horace Leonard Jones (Heinemann, London, 1923), 4, 2, 1.

²⁹ Bertrand, Alexandre, *Nos origins. La Gaule avant les Gaulois* (Leroux, Paris, 1891), p. 248.

overcome during the invasions rather than a coveted prize, though no satisfactory explanation has been made why this land should have been passed over by the invaders. Even after it had become part of France in 1453³⁰ the people remained isolated as a nearly foreign group.

During the last few centuries there have been minor infiltrations of people of other nationalities. Spanish³¹ and Italians³² are the most numerous, though there has been, in recent years, an influx of Swiss to the western part of the Pays du Gers.³³ Only very slowly have these people been absorbed. The inhabitants have remained nearly as free from admixtures as the Basques.

The present population is distinctly a rural one. The French census lists classes of population on the basis of the size of agglomeration in which the people live. Agglomerations of over 2,500 people are considered urban, whereas those of smaller size down to the individual house are considered rural. In the 1926 census,³⁴ the population of the whole of France is given as 40,743,854, of which 19,984,720 are listed as urban dwellers. The Department of Gers, which may be taken as representative of the Pays du Gers for statistical purposes, is listed as having a total population of 196,419, of which only 26,250 are urban dwellers. For the whole of France the population is 49 per cent urban whereas, in the Department of Gers, it is only 13 per cent urban. The rural character is further emphasized by the consideration of the proportion of persons engaged in agriculture. In France as a whole, in 1921, 23 per cent of the people were engaged in agriculture, whereas in the Department of Gers 48 per cent were so engaged.

The one basically geographic cause of depopulation³⁵ in the Department of Gers since 1846 (see Table I) has been industrialization and urbanization in other parts of France. To these other centers

³⁰ Williamson, James A., *Maritime Enterprise, 1485-1558* (Clarendon Press, Oxford, 1913), p. 208.

³¹ Caziot, Pierre, *La Valeur de la terre en France* (Baillière, Paris, 1914), p. 332.

³² Granat, O., *Géographie du Lot-et-Garonne* (Agier, Agen, 1929), pp. 44 and 45.

³³ Bernhard, *op. cit.*, Pl. 32.

³⁴ *Résultats statistiques du recensement général de la population effectué le 7 mars 1926* (Impr. Nationale, Paris, 1928).

³⁵ Other phases of the question of the depopulation are discussed in Labat, Emmanuel, "En Gascogne. L'Abandon de la terre," *Rev. des deux mondes*, 80th year, 5th period, 58: 635-668. 1910; and *idem*, "En Gascogne. À propos du problème de la natalité," *ibid.*, 81st year, 6th period, 4: 62-95. 1911.

TABLE I ³⁶

POPULATION OF THE DEPARTMENT OF GERS					
1790.....	268,800	1846.....	314,885	1886.....	274,391
An VIII ³⁷ ..	270,609	1851.....	307,479	1891.....	261,084
1806.....	295,021	1856.....	304,497	1896.....	250,472
1821.....	301,336	1861.....	298,931	1901.....	238,443
1826.....	307,601	1866.....	295,692	1906.....	231,088
1831.....	312,160	1872.....	284,717	1911.....	221,994
1836.....	312,882	1876.....	283,546	1921.....	194,406
1841.....	311,147	1881.....	281,532	1926.....	196,419
For 1926: Agglomerated.....				72,134	
Scattered.....				121,132	
Others, including troops, etc....				3,153	
French.....				184,335	
Others.....				12,084	
Houses.....				57,315	
Households.....				54,807	

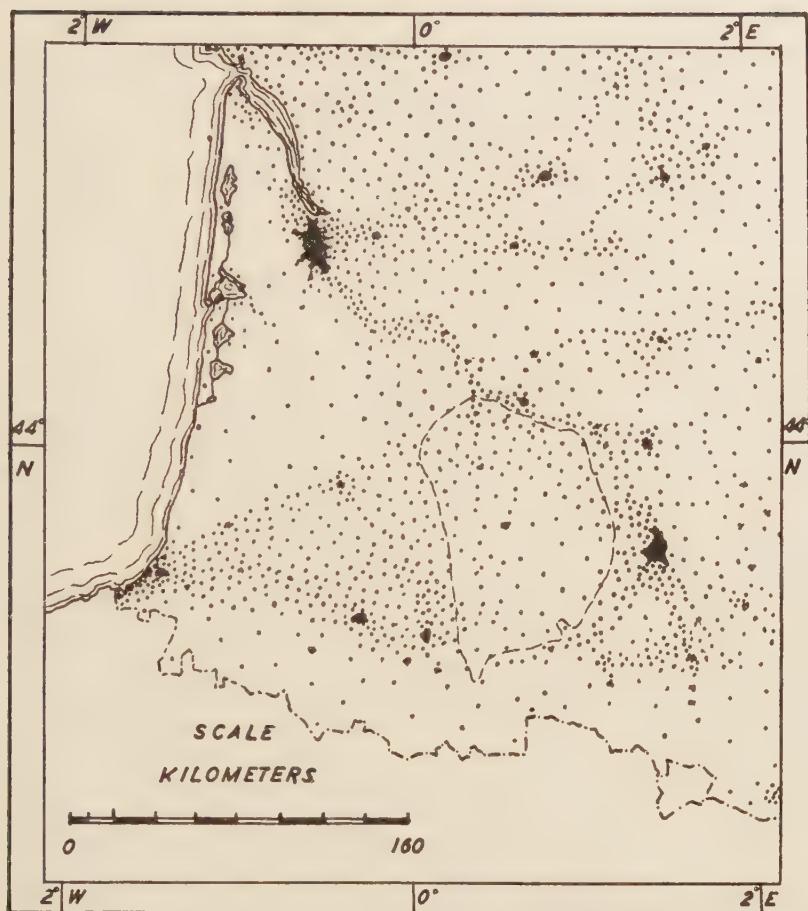
many of the younger people of Gers have gone, and few of them have ever returned. The character of Gers does not permit within its confines the growth of large cities which might combat this trend. Gers is a rural portion of France and by its own equipment it is forced to remain so. There has been a growing dislike for rural life during the last two generations, combined with the rise of the feeling that agriculture is not a desirable pursuit. The area can provide food, clothing, and shelter, but moneyed wealth is not to be found. The large city calls up illusions of great wealth and easier life than the farm. As a result, the youth of the country are strongly tempted to leave and do so. Thus the Pays du Gers loses population to other sections of France where rural life is not predominant.

The distribution of population

In contrast to that of surrounding regions, the population of the Pays du Gers is quite sparse (Map 25). The Garonne lowland forms a winding band of nearly evenly distributed population from the large seaport agglomeration of Bordeaux to the inland center of Toulouse. Even beyond this latter place the band continues until the immediate pre-Pyrenean valley is reached. To the west a triangular area of dense population exists between Bayonne, Tarbes, and Mont-de-

³⁶ *Annuaire administratif du Gers pour 1930* (Cocharaux, Auch, 1930), p. 57.

³⁷ *An VIII* in the calendar of the French First Republic corresponds to the period between Sept. 22, 1800, and Sept. 16, 1801, of the Christian calendar.

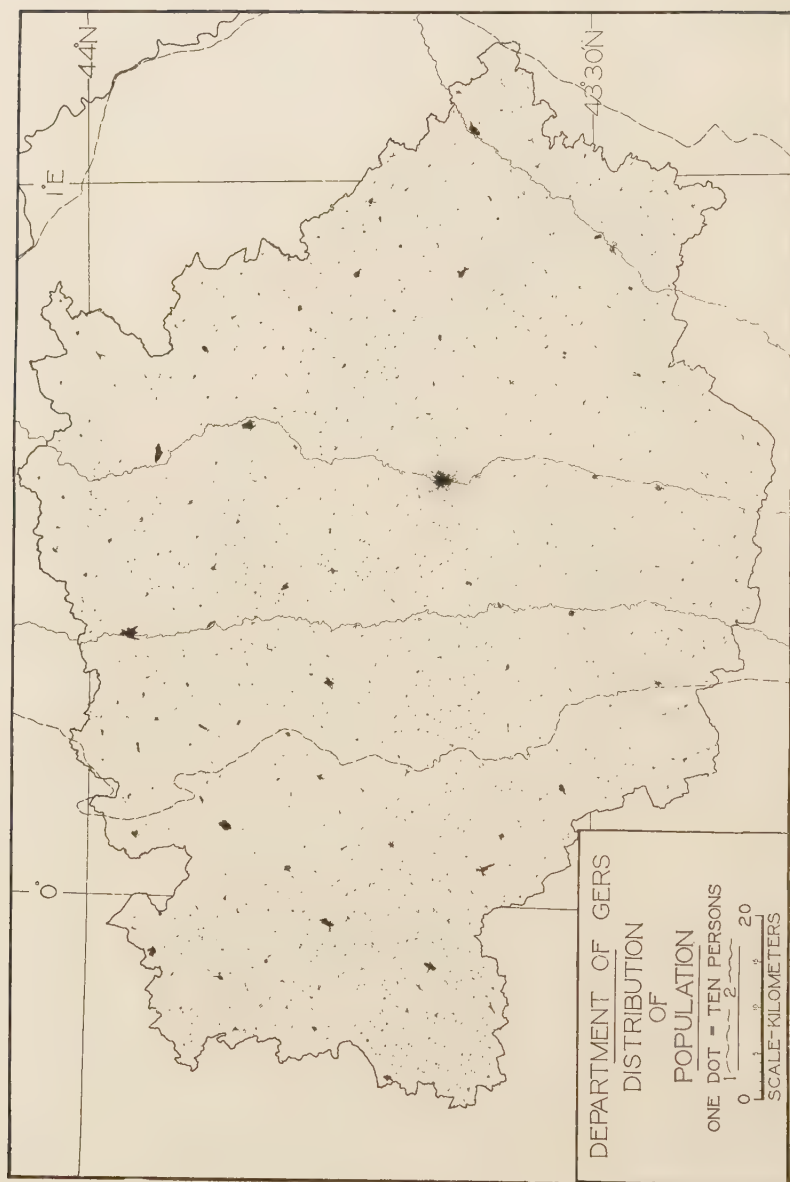


MAP 25. Population of southwestern France according to the census of 1926. One dot equals 2,000 persons. Dashed line indicates the limits of the Pays du Gers

Marsan. Of all the surrounding regions only in the Landes is a sparser population and a more scattered one to be found.

In detail, the population of the Central Pyrenean Piedmont is distinctly disseminated³⁸ (Map 26). A rather even spread with

³⁸ Statistical data for the Pays du Gers as a whole are not available, and hence only for that portion which lies in the Department of Gers has it been possible to construct a detailed map of population distribution.



MAP 26. Explanation of symbols: 1, limits of the Pays du Gers; 2, limits of the Department of Gers. Statistics from *Annuaire administratif statistique, historique, et commercial du Gers pour 1930* and from *Résultats statistiques du recensement général de la population effectué le 7 mars 1926*. Position of dots controlled by position of houses shown on the Carte de France à 1 : 50,000 — 1926 édition

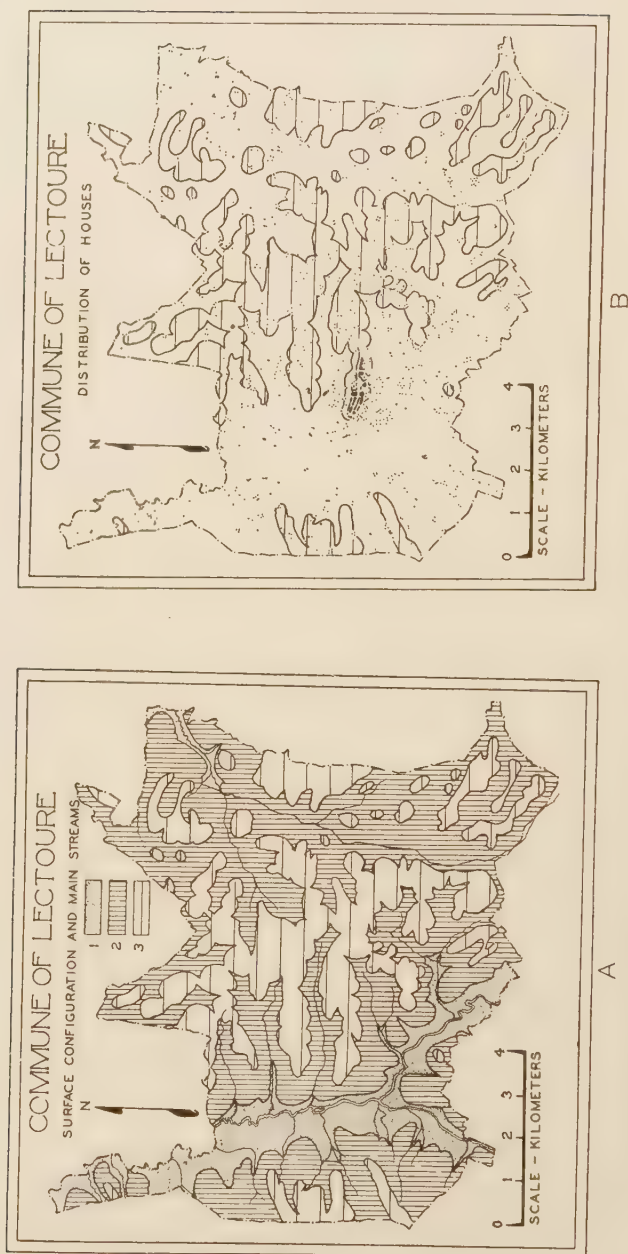
many scattered nuclei is to be noted. The largest of the nuclei is the city of Auch, with 12,500 inhabitants. This is the only urban agglomeration within the area. To the north of the city the dissemination is quite even, as is also the spotting of nuclei throughout it. To the south of the city the spread is more uneven, and the groupings are fewer and smaller. A closer examination of the patterns of two small sections will serve to show the essential differences between north and south.

The first of these small sections is the commune of Lectoure, which is in the north-central part of the Pays du Gers. The surface as a whole is in the mature stage of erosion (Map 27 A). The Gers River flows northward over a flood plain which has an average width of one kilometer. Rising in varying slopes, the valley walls stretch back to mature ridge tops. The eastern valley side is steeper than the western one. Tributaries to the main stream have eaten back into the original interfluves and have carved out steep-sided masses which project finger-like toward the main valley.

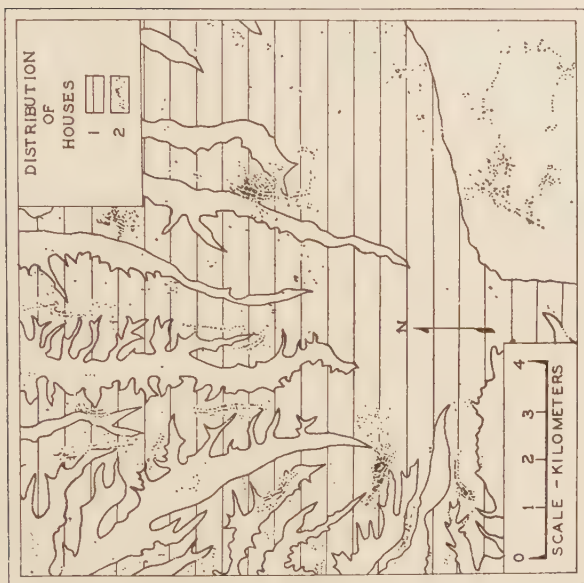
On the remnant of the upland surface which extends farthest toward the Gers River there is a large agglomeration, which is the town of Lectoure (Map 27 B; Pl. LXXXIII, Fig. 3). It comprises 58 per cent of the total population of the commune. The remainder is scattered over the whole area, with a notable tendency toward arrangement of houses in closely knit groups. All types of surface are used, but fewer houses are on the flood plains than on either the ridge tops or the slopes. The pattern of house distribution indicates decreasing density of population with increasing distance from Lectoure, regardless of surface types.

The plateau of Lannemezan stands in considerable contrast to the area of the commune of Lectoure. The gently inclined surface of the plateau slopes steeply down to the southeast and the southwest to valleys of Pyrenean streams (Map 28 A). To the north finger-like extensions project between youthful valleys of the rivers which have their sources upon the surface of the plateau. It is typically an area of narrow, steep-sided valleys and narrow, flat-topped interfluves.

The population is concentrated where the youthful valleys most closely approach one another on the outer fringe of the plateau (Map 28 B). The dissemination of houses is less than in the commune of Lectoure, and the population is almost exclusively confined to the ridge tops. Each interfluve bears a loosely arranged agglomera-



MAP 27. Position of houses, from Carte de France à 1 : 50,000 — 1926 édition. Explanation of symbols:
1, flat valley floor; 2, valley sides; 3, ridge tops



B

MAP 28. The Plateau of Lannemezan

A. Explanation of symbols: 1, undissected plateau surface; 2, flat valley floors; 3, valley sides; 4, terrace of the Neste River; 5, Pyrenean slopes

B. Explanation of symbols: 1, undissected plateau surface; 2, houses

tion which, in some instances, stretches along the ridge for a distance of two kilometers or more (Pl. LXXXV, Fig. 2). There are relatively few isolated dwellings.

Population agglomerations

The presence of many agglomerations is the most conspicuous feature of the population distribution. Regardless of size, the groups of buildings convey the impression of fitting the setting almost as though they were part of it. They are dominantly of limestone in the west and of sun-dried brick in the east. In many instances a layer of stucco, made from local clays, covers these materials. The color is invariably the yellow-brown of weathered ferrous rock. Roofs of reddish tile throughout, except in the southwest, where Pyrenean slate is available near by, are also discolored by weathering. A massing of such buildings, whether large or small, results in the same kind of expression on the surface of the land. The conspicuousness is, however, more a function of site than of form of these agglomerations.

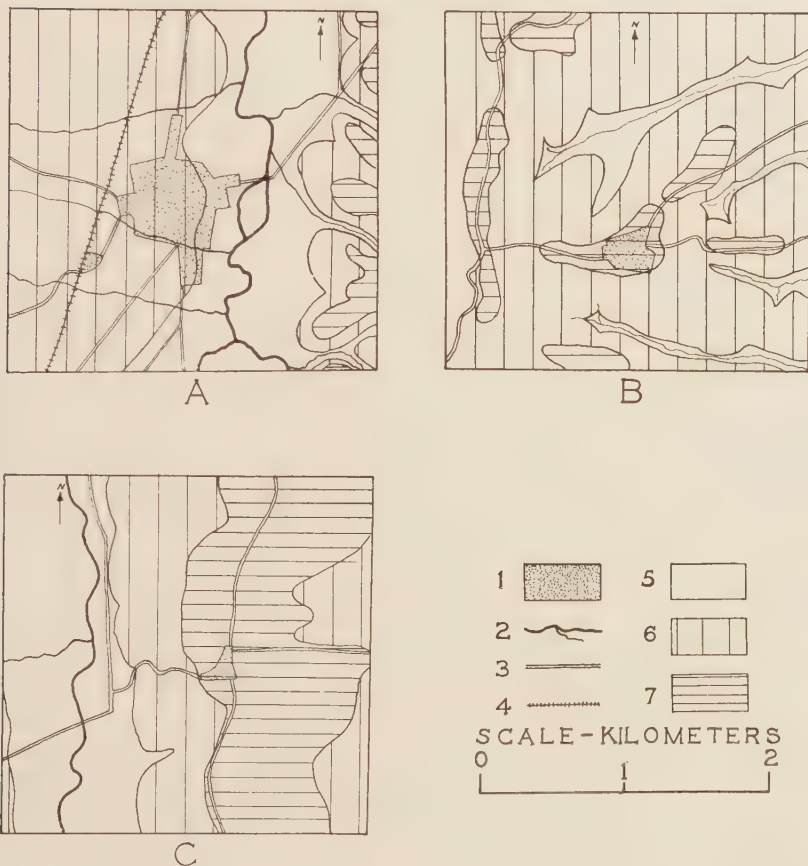
There are three characteristic sites on which these population groupings occur. One type of site is the gently sloping side of a main valley at the edge of the present flood plain (Map 29 A). The second type is the hilltop (Map 29 B). The third type is the crest of the steep valley side, where the interfluve is youthful in character (Map 29 C).

The valley sites are occupied in the area of mature valleys and more particularly where the interfluves are mature as well. The towns on these sites center on the intersection of two highways; one extends along the valley and the other crosses the valley and the interstream spaces on either side. This type of site is not occupied in the southern zone of youthfully dissected surface or for some distance northward into the central zone of mature valleys and youthful interfluves.

The hilltop site is most commonly occupied in the northern and eastern maturely dissected portion of the Pays du Gers (Pl. LXXXIV, Fig. 2). There the agglomeration usually centers about either an old church or a château, and consists mainly of closely packed houses, some of which are contiguous to the church or the château itself. The aspect of a walled town is created.

The site on the crest of the steep valley side in the areas where the interfluves still retain some of their youthful character is utilized in

TYPES OF AGGLOMERATION SITES



MAP 29. Explanation of symbols: 1, area covered by agglomerations; 2, streams; 3, roads; 4, railroad; 5, flat valley floor; 6, valley sides; 7, ridge tops

the southern and central surface zones (Pl. LXXXIV, Fig. 3). Near the northern extremity of the zone of mature valleys and youthful interflues, where the interflue edges become more fretted by the erosive action of an increased number of tributary streams, agglomerations are at the ends of the projections of these interflues toward the main valleys. In the south some agglomerations occupy the whole width of the narrow interstream spaces.

In the choice of the last two types of site protection seems to have been the guiding principle.³⁹ All the older towns and villages have sites of one or the other of these two types. With the advent of comparative stability of government and freedom from invasion,⁴⁰ valley sites came to be occupied. The increase in completeness of articulation with the rest of France made positions along the main routes more desirable.

With increased population in the valley towns many of them have spread out over the present flood plains of the rivers, but in all such instances artificial control of river waters is practiced either by the construction of diversion channels upstream from the town or by building deeper, walled channels along the stream courses within the agglomerations (Pl. LXXXII, Fig. 2). Many of the groupings on the hilltops or on the crest of the valley sides, where these towns are situated near the major streams, have, with the increased importance of road and rail connections, spread from their original sites down the valley sides (Pl. LXXXV, Fig. 1). They have even grown across the flood plain in their attempts to overcome the handicaps of the positions imposed upon them by the necessities of another age.

The remainder of the population is distributed about the towns and villages in a manner dependent upon the pattern of circulation forms. These, in turn, reflect closely the surface configuration. Consequently the spread of population is quite evenly radial about the towns and villages in the zone of maturely dissected surface. Where youthful surface forms alone are present, the population spread has been confined to the ridge tops. The central zone is transitional in terms of population distribution, as it is in terms of surface configuration. However, there is no sharp break between the patterns in the various parts of the whole area.

CIRCULATION

In the arrangement of all the forms of circulation the relationship to surface configuration is recognizable, though it is more clearly demonstrated in some parts of the region than in others. In the south limitations are imposed by the boldness of the relief. In the north relief is less hampering to free development, though the limi-

³⁹ Laurant, Gustave, "Armagnac et pays du Gers," *Rev. de Gascogne*, 53d year, New Series, 12: 289. 1912.

⁴⁰ *Ibid.*, p. 300.

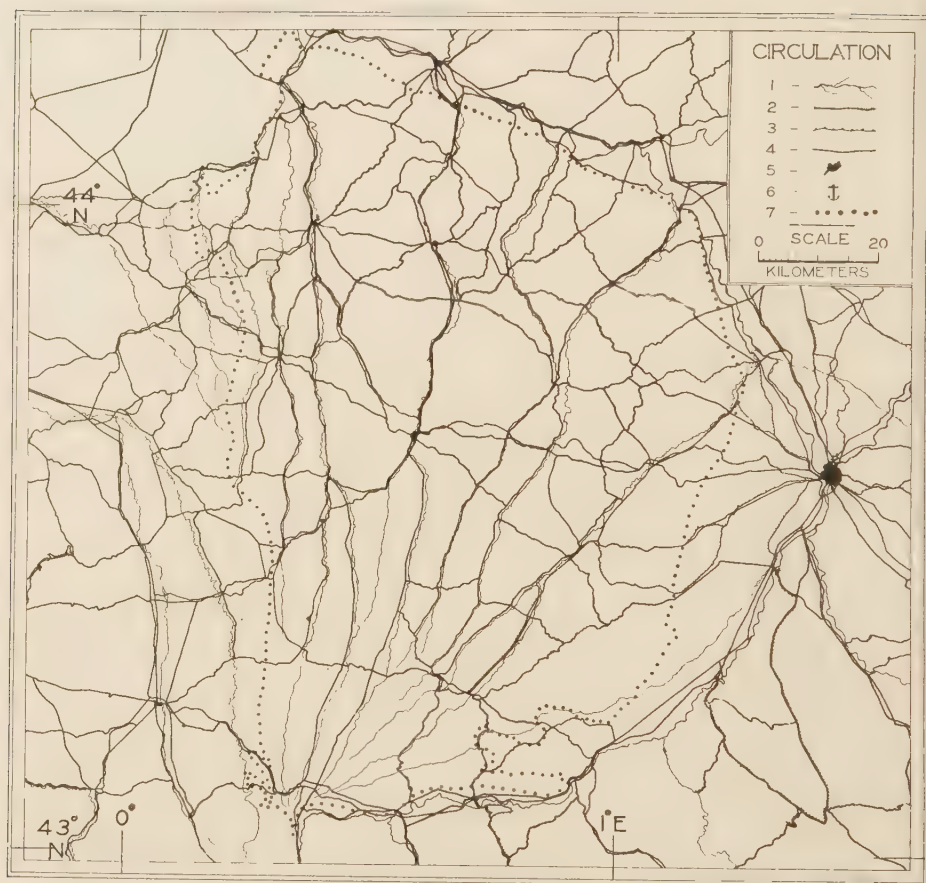
tations are not sufficiently relaxed to allow the divorcement of the pattern of circulation forms from that of surface configuration.

Roads

Two classes of roads may be recognized on the basis of conspicuousness in the landscape. The hard-surfaced roads, whether they are "Routes Nationales" or "Routes Départementales," are most frequently traveled. They are characteristically about five meters in width. Along both sides and set back about two meters from the edges there are usually lines of trees (Pl. LXXXIV, Fig. 1). These draw attention to the roads perhaps even more than do the streams of traffic which flow along them. Such highways are the main or the major routes of communication. In contrast to them are the minor roads which are unsurfaced. Great variety in width and upkeep make them undesirable except as tributaries to the main highways. They vary from mere cart tracks or sinuous thin bands of unsodded surface to expanses of sand, clay, or gravel five or six meters wide. Usually they are not observable from any considerable distance and, though they may alter the landscape pattern in detail, their function in this respect is completely overshadowed by that of the major roads.

In general, the highways diverge radially from a focus on the plateau of Lannemezan (Map 30). One road crosses the plateau from the premontane valley of the Neste on the east to that of the Arros on the west. At right angles to it two highways stretch northward in a subparallel plan along the finger-like plateau extensions. About fifteen kilometers from the plateau they descend the left valley sides to the level of the present flood plains. One follows the valley of the Petite Baïse River to its junction with the Grande Baïse, along which the road continues its northward course. The other follows the Gers River. They extend along diverging courses in the same position relative to the valley floors as far as the latitude of Auch. North of this there are frequent shifts from one valley side to the other, depending upon the position of the streams in their flood plains. One road joins the Bordeaux-Toulouse highway in the Garonne Valley at Agen; the other, at Porte Ste. Marie.

Until the latitude of Auch is reached main east-west roads are infrequent but, in addition to the two mentioned above, many roads diverge northward. They follow ridge tops (Pl. LXXXVI, Fig. 1) or



MAP 30. The Pays du Gers and surrounding area. Based on Carte de France à 1 : 200,000 — 1927 édition. Explanation of symbols: 1, main rivers; 2, standard-gauge railroads; 3, narrow-gauge railroads; 4, main roads; 5, towns with more than 2,000 inhabitants; 6, head of navigation on the Baise River; 7, limit of the Pays du Gers

the edges of the valley floors. Frequently roads from tributaries unite with those in the main valleys. This upsets the regularity of the radial pattern.

North of Auch, where the relief is less marked and the slopes are less abrupt, each large agglomeration of population is the center of a secondary radial pattern which masks the basic one. Ridges are more frequently chosen for roads in this section than are the valleys, though all types of surfaces are utilized with considerable ease (Pl. LXXXII, Fig. 1).

The base from which the present pattern developed is found in a pre-Roman route which connected Aquitaine with Aragon across the central Pyrenees.⁴¹ This route left the Pyrenees near the apex of the fan, crossed the plateau of Lannemezan, and followed northward along the water parting of the Adour and the Garonne drainage basins. Such a route avoided the bridging of streams and the surmounting of steep slopes. A portion of it is followed by the present road just to the northwest of the Pays du Gers.

More significant in the present pattern are the Roman roads. Only four of these have been definitely traced. One of them connected Agen on the north with St. Bertrand de Comminges on the south.⁴² This is essentially the route followed by the present road in the valley of the Gers from Agen to Masseube. To the south of that place it found its way in zigzag fashion across the intervening valleys to its destination. Another highway connected Toulouse and Agen by way of Lectoure.⁴³ The third connected Toulouse and Dax.⁴⁴ The present road from Toulouse to Auch and on to the northwest follows nearly exactly the trace of this old Roman thoroughfare. The fourth was of a later date than the others. It connected St. Bertrand de Comminges and Dax, crossing the plateau of Lannemezan near the northern limit of its undissected surface.⁴⁵

The choice of the particular trajectory which the present road follows across the plateau of Lannemezan is primarily the function of the road which preceded it and of the position of agglomerations of

⁴¹ De Casteran, Paul, "La Lande de Boc," *Rev. de Comminges*, 13: 246. 1898.

⁴² Laurant, Gustave, "Armagnac et pays du Gers," *Rev. de Gascogne*, 54th year, New Series, 13: 48-54. 1913.

⁴³ *Ibid.*

⁴⁴ See *Itinéraire d'Antonin* in Desjardin, Ernest, *Géographie historique et administrative de la Gaule romaine* (Hachette, Paris, 1885), Vol. IV.

⁴⁵ Fabre, "Les Landes . . .," p. 260.

population on the portion of the plateau surface that extends northward. It is not a function of surface differences. So it is likewise with the course of the road from the south across the plateau. Minor roads are all straight, except those that bend slightly to the south to avoid the headwater ravines of the streams which have their origin on the upland surface.

In the zone of asymmetrical valleys and flat-topped interfluves the main roads, with one exception, extend along the grain of the country. The one exception is the road which forms a semicircle from Tarbes on the west of the region to St. Gaudens on the east. Between this road and the plateau the two routes previously mentioned as the skeleton of the whole pattern are the only main-traveled thoroughfares. To the north of it nearly every valley and a few of the interfluves are served by well-traveled highways. They extend as far northward as the next main east-west road, which is the one that winds its sinuous course from Toulouse through Auch. In this zone the ruggedness of the land surface is not great enough to prevent the construction of roads in almost any direction, but ease of communication on a north-south line has emphasized the importance of routes so oriented. The minor roads are for the greater part connecting links between the north-south highways, though occasionally they parallel the major ones.

To the north of Auch the undulating character of the surface is shown by the fact that the roads are no longer confined to the valleys or to the ridge tops. Nearly direct routes between the larger population agglomerations are followed. The roads are not laid out along straight lines, with no conformity to surface. At the same time they are much less closely controlled by it than they are to the south of Auch. In many instances the hamlets and villages are not located on the main highways, but are connected to them by short spurs. In a few places this indicates a local difficulty of surface, but more frequently it is a reflection of the character of the agglomeration itself. Many of them are older than the road system and consequently are too compact to allow the unimpeded movement of the traffic that passes over the main highways. The minor roads form a very complete connecting network between the main roads. They extend over all types of surface and link the whole population to the larger centers.

Auch, which is located on the border between the zone of roads

closely controlled by surface features and the zone in which there is little control by surface, forms the center of an octopus-like pattern of main highways (Map 30). At Auch the north-south and the east-west Roman roads crossed, and, though the town does not owe its origin to that fact,⁴⁶ the road intersection has undoubtedly been an important factor in the development of that town as a center toward which the whole region is focused. Three main highways have been added to the original ones from Auch. One of these branches from the highway leading westward crosses the upland to the northwest and descends a tributary valley to the Baïse, where it joins a main north-south highway. The second of these additional roads branches to the southwest, follows up a tributary valley for about five kilometers, and makes its rather tortuous way across five interfluves to the plain of the Adour. The third supplementary road extends directly southeast from the city across valley and interfluve alike to Lombez in the valley of the Save. All these additions are relatively recent in construction and are dominantly political in importance. Auch is the *préfecture* of the Department of Gers. Condom, Mirande, and Lombez are *sous-préfectures*. The three roads link these latter towns with Auch and make it a focus for the whole region.

The basic pattern of highways is radial from the plateau of Lannemezan and, in its southerly portion, is limited in its digression from that form by the surface configuration. To the north the superimposition of other radial patterns, the most important of which is that about Auch, indicates a very weak control by surface. Purely cultural forces have subtracted from the effective natural focus position of the plateau of Lannemezan and have substituted the town of Auch in its place. Thus there is close integration within the region as well as direct articulation with the road systems of all surrounding regions, with the exception of the Landes.

Railroads

The railroad pattern is far less complex than that of the roads, though the rôle which the railroads play in emphasizing the focal position of Auch is great. Not only is this function well performed,

⁴⁶ Guilbert, *op. cit.*, II: 210. Auch was established previous to the Roman occupation of this region.

but the railroads link Auch and, through it, the whole region to the densely peopled urban centers of France.

Main railroad lines extend in four directions from Auch as a center (Map 30). At the present time⁴⁷ a fifth main line is being constructed southward from Auch along the valley of the Gers. It has been under construction for a long time, and the original intention was to continue it across the plateau of Lannemezan to the valley of the upper Neste. A southward extension was to follow along the old trans-Pyrenean route. In event of the completion of this project it is suggested that the focus would shift and that the plateau, as represented by the town of Lannemezan, from which a spur line extends southward a short distance at present, would become the nucleus of the occupancy of the region,⁴⁸ as it is of the setting.

Narrow-gauge railroads extend toward the center of the Pays du Gers from the north, east, and west. They serve the sections which are most remote from the main lines that cross the country, but they are not integrated with the essential pattern of railroads within the Pays du Gers.

Waterways

There is one other connecting link with the outside world, though it is of little importance as a bond within the area. The Baïse has been canalized as far as Condom (Pl. LXXXII, Fig. 2), which is a center of the armagnac⁴⁹ trade. Small barges ply between Condom and Bordeaux along the Baïse River, the Canal lateral de la Garonne, and the Gironde estuary. This route is an outlet for a special commodity and is rarely used for any other purpose than the shipping of that commodity.

THE USE OF THE LAND

Close integration with the setting is shown in the forms of circulation throughout the Pays du Gers. The pattern of circulation forms is the framework upon which the population is distributed.

⁴⁷ The summer of 1930.

⁴⁸ De Casteran, *op. cit.*, pp. 246-247.

⁴⁹ *Armagnac* is the name given to brandy which is distilled from the white wines of Bas Armagnac, Tenareze, and Haut Armagnac. Tenareze and Bas Armagnac are *pays* lying outside the Pays du Gers and to the west of Haut Armagnac, as the northwestern part of the Pays du Gers is called. See De Cassagnac, Paul, *Les Vins de France* (Hachette, Paris, 1927), pp. 192-193. See also Shand, P. Morton, *A Book of French Wines* (Knopf, London, 1928), p. 238.

These relationships suggest a regional unity. The nature of the population furthers the idea of unity within the region as well as of contrast with surrounding portions of the Aquitain Basin. It is the use of the land, however, which binds the elements of the setting, of population, and of circulation into a whole which is the landscape of the Central Pyrenean Piedmont of France.

The agriculture of the Pays du Gers

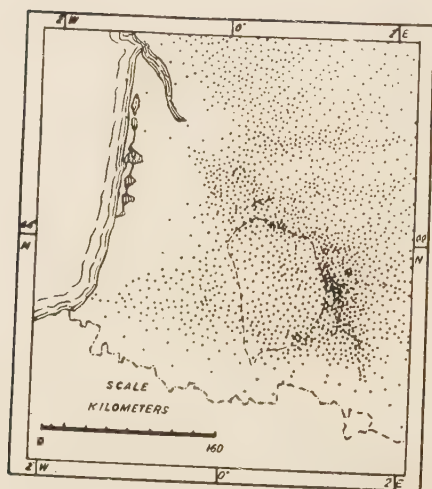
Within the Pays du Gers there is variation of detail, yet the basic combination of rural forms is the same throughout. Most of the land is cleared or has always existed without forest cover, and a large share of this is in crops. The portion which is not so used is taken up for the greater part as pasture land. Very little may be truly classed as waste. Sixty-two per cent⁵⁰ of the land is arable; eleven per cent is natural grassland; eight per cent is heath, moor, or brush land; seven per cent is wood-covered; and six per cent is in pasture or meadow. The remaining six per cent of the area is occupied by buildings, roads, and waste land.

Somewhat more than half the arable land is cropped. The dominant crop is wheat, and it is found more or less evenly distributed throughout. It occupies about twenty-seven per cent of the arable land. Its closest competitor, areally, is the vine, which extends over thirteen per cent of the arable area. Two other grain crops are important, oats on seven per cent of the land and maize on four per cent. The remainder is used for such items as garden crops, fruit, and, occasionally, rye. Each year a considerable amount of land is allowed to lie fallow or is used as rotation pasture.

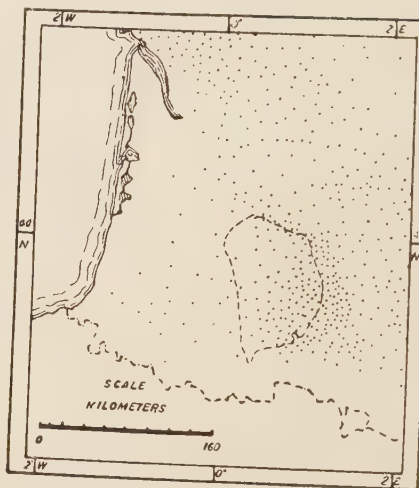
In the animal industries cattle production for beef is distinctly the most important and is approached only by hog and poultry raising. In the amount of land used the animal industries as a whole are important throughout, for it is only in terms of an integrated system of crop raising and animal production that the rural occupation of the area is expressed.

Though wheat is the major crop almost throughout, the secondary crops vary in importance in the different parts of the Pays du Gers (Map 31, A-D). The vine is distinctly more important along the northern fringe and in the Baïse lowland than elsewhere. Maize is of

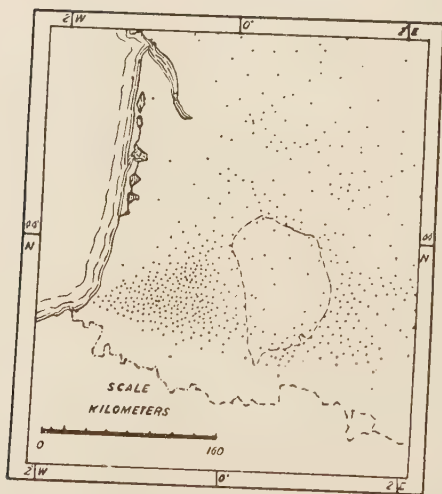
⁵⁰ All the statistics mentioned in this section of the paper are from *Statistique agricole annuelle, 1930* (Impr. Nationale, Paris, 1932).



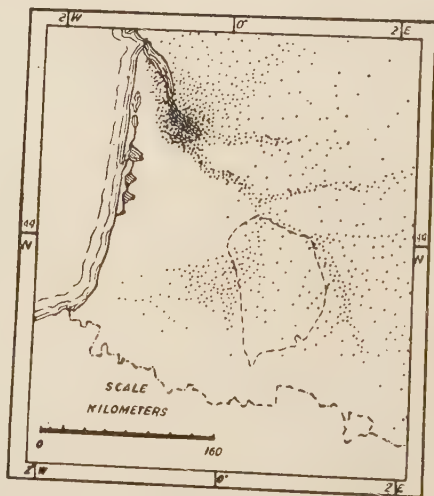
A



B



C



D

MAP 31. Distribution of crops in southwestern France: A, wheat; B, oats; C, maize; D, vine. One dot equals 250 hectares. Dashed line indicates limit of the Pays du Gers.

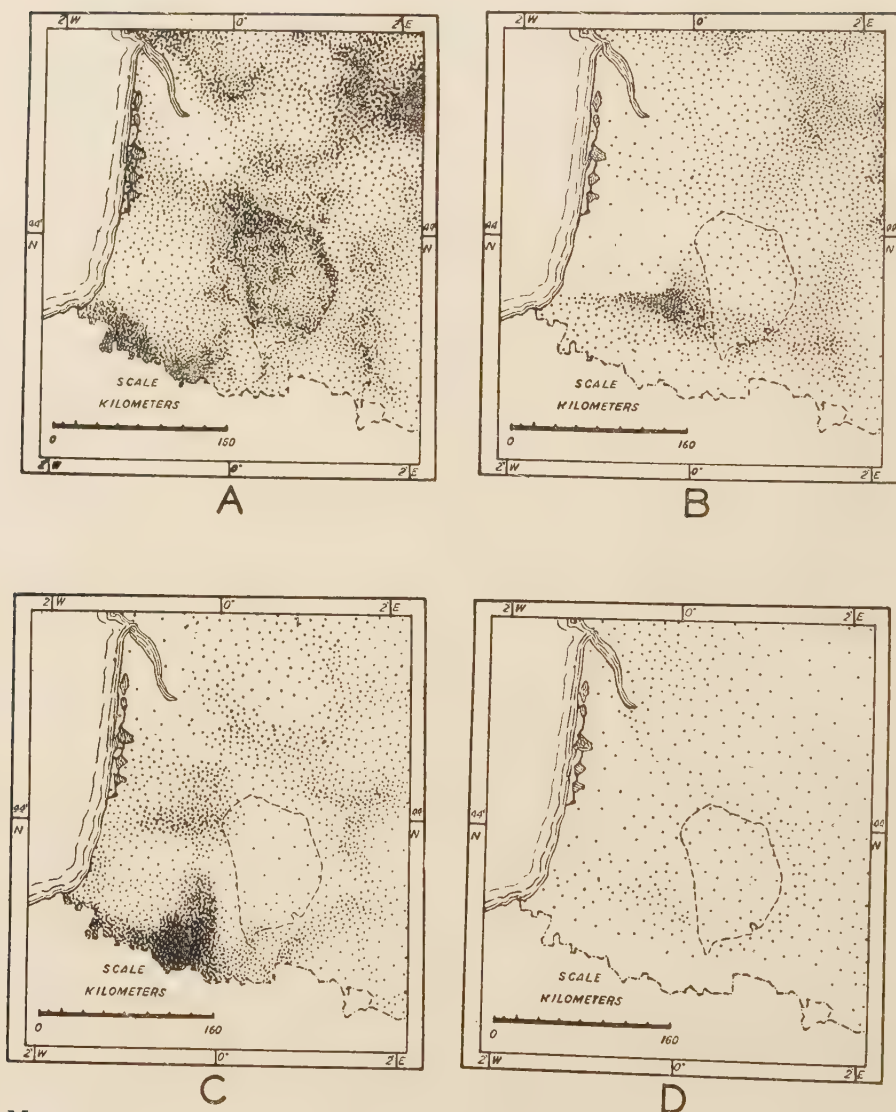
greater importance in the southwestern part and along the Garonne Valley fringes than it is throughout most of the rest of the region. This does not hold true locally, however. Oats are clearly the dominant secondary crop in the eastern half of the region. The particular use of the land in any one year may show an increase in any one of the secondary crops at the expense of the others in any portion of the Pays du Gers, but the average of conditions is that stated above.

The same kind of variation is to be noted in the distribution of the animals (Map 32, A-D). Cattle are plentiful over all the land, but there are fewer as the plateau of Lannemezan is approached. On the other hand, the numbers of sheep and hogs increase in that direction. Sheep are not very numerous except in that portion nearest the Landes and on the plateau of Lannemezan, whereas hogs are present in the greatest numbers in the southern one third of the region.

The variations of the crop and animal combinations in quantity, though not in quality of types represented, reflect the characters of the surrounding regions. The Pays du Gers is an area of blending of the specialized forms of agricultural and pastoral pursuits found throughout the whole of the Aquitain Basin.

Land-use patterns

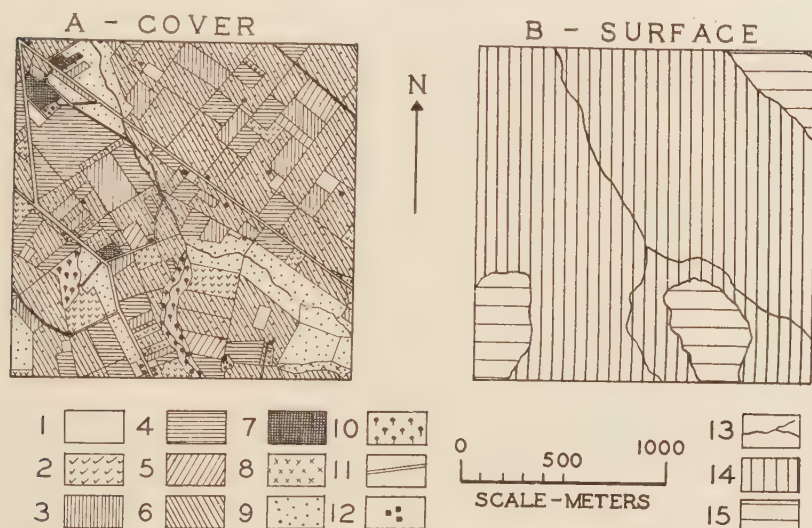
The patterns of land use fuse the differences within the Pays du Gers into a whole which emphasizes the setting and the distribution of people through it. To the north the waves of hilly land present the aspect of a huge park stretching as far as can be seen (Pl. LXXXII, Fig. 1). The surface is dotted with villages and hamlets and gives the appearance of being much more wooded than is actually the fact. Intermingled with the trees and clustered about the dwellings and along the roads the fields form a checkerboard with varying color indicating the crop, pasture, and woodland mosaic (Map 33, A-B). The fields are rectangular, and many are outlined by hedgerows from which the poplars stand up as thin spires. The major streams are definitely traced by the lines of willows, alders, and poplars along their banks. The roads, too, stand out because of the trees which mark their courses. Most notable over this whole scene is the concentration of pasture (Pl. LXXXVI, Fig. 2) and hay land in the valley bottoms (Pl. LXXXIII, Fig. 3) and the occurrence of cropped land on the hillsides. Though the checkerboard arrangement persists



MAP 32. Distribution of animals in southwestern France: A, cattle; B, hogs; C, sheep; D, horses. One dot equals 250 head. Dashed line indicates limit of the Pays du Gers

over valley and hill alike, there is little regularity in orientation. In some places the fields bear a close relationship to the population agglomerations. In others they are oriented with respect to the roads. Yet, over all, the exact demarcation of field lines is the dominant impression.

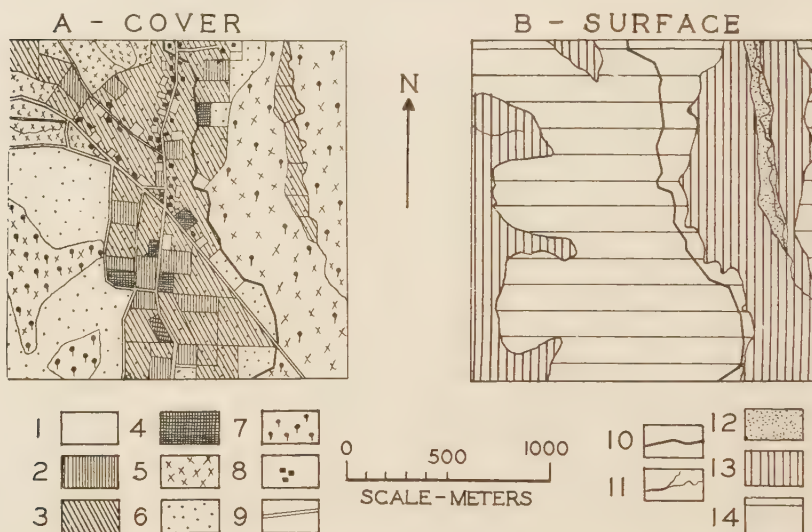
Greater conformity to the pattern of surface features is to be noted farther to the south (Map 34, A-B). With increasing asym-



MAP 33. A small area near the northeastern limit of the Pays du Gers. Explanation of symbols: 1, garden; 2, vineyard; 3, maize; 4, wheat; 5, oats; 6, land from which hay is cut; 7, clover; 8, brush; 9, pasture; 10, woods; 11, roads; 12, houses and barns; 13, streams; 14, valley sides; 15, ridge tops

metry of the valleys in that direction there is an increased amount of land unsuited for crops or even for pasture. For this reason more of the land is wooded or covered with brush (Pl. LXXXVI, Fig. 3). The valley bottoms retain their function as pasture land or meadow, but the crop land is very definitely arranged in conformity with the surfaces of gentle slope. The western valley sides and the flat-topped interfluvial remnants are the sites of most of the cultivated land. There results a striplike pattern oriented in a roughly north-south direction in which cultivated land is nearly paralleled by pasture and meadow, and that in turn by woodland and brush land.

Beyond the zone in which the valleys are flat-floored the same type of arrangement is found, except that less of the valley bottom is used for pasture and none of the valley sides are used for cropping other than of the garden type. A few fields nestle in the tree-covered valleys, but these are either pasture or hay lot (Pl. LXXXIII, Fig. 1). Crop cultivation is limited to the finger-like projections of the dissected edge of the plateau of Lannemezan.



MAP 34. A small area on one of the northward projections of the dissected edge of the plateau of Lannemezan. Explanation of symbols: 1, garden; 2, maize; 3, land from which hay is cut; 4, potatoes; 5, brush; 6, pasture; 7, woods; 8, houses and barns; 9, roads; 10, canal; 11, streams; 12, flat valley floors; 13, valley sides; 14, ridge top

The surface of the plateau is cultivated only along its northern edge or around the few population agglomerations which exist upon it. The surface is not divided into fields, and little breaks the monotony of the continuous stretch of scrubby vegetation except here and there some small forest remnant (Pl. LXXXIII, Fig. 2). Sheep grazing is unrestricted in its extent upon this land, but no fenced pasture exists.

The general pattern of land use in the Pays du Gers reflects very completely the surface configuration. In detail, however, this is often only indirectly so. The field patterns are locally oriented with respect

to the roads and, through them, to conditions of surface. In sections where the presence of a population group seems to be more immediately the effective agent of arrangement, that very fact links the pattern to that of surface either directly or through the element of the road pattern. The earliest settlements of the Pays du Gers were relatively isolated communities and, for a long period of time, they have been of a self-sufficient type. In many places they have opposed the advance in means of communication which would remove the necessity of that self-sufficiency. The early groupings of such communities for protection brought about a pattern of land use which still persists in a fragmentary way.

Grouped about the church or château, the houses capped the top of a prominent hill set in the midst of the forest-covered land. Clearings in the wider valley bottoms may have broken the extent of forest. Gradually the land around the settlement was cleared and the fields for immediate necessities were laid out. As the clearing of the land spread down the slopes to join with the natural grasslands of the valleys, more and more land was opened to cultivation. Fields were larger since there was a greater amount of land for each individual as the circle of cleared land spread. In the landscape of the present the concentric pattern, in which increasing size of field accompanies increasing distance from the settlement, is found to be present residually in the maturely dissected portion of the Pays du Gers (Pl. LXXXIV, Fig. 2). Associated with this pattern there is usually a specific zoning of crops. Encircling the buildings are the smallest fields, which are used as gardens or vineyards. Around them in the larger fields are the grain crops. And, farthest removed, are the lands given over to pasture. This is not invariably the arrangement, for frequently the fields close to the hamlet or village are used for pasture. Around the larger agglomerations this pattern, if it existed originally, has been considerably modified or destroyed by the gradual extension of the built-up area. With the increase in importance of roads and with the decrease in self-sufficiency of small parts of the Pays du Gers, a new group of determining factors has arisen.

Where the road has become more significant than the population agglomeration and where settlement has spread along the roads either as small agglomerations or as isolated houses, the road itself is the axis of the pattern. Small fields line the highway on both

sides. Back from the roads the size of the fields usually increases. Crops are grown in those nearest the roads while those farthest removed are in pasture.

The year in the Pays du Gers

Though the clear-cut decline of activity within the severe winter lands or within the lands of seasonal drought is lacking in the Pays du Gers, there is a very definite rhythm of intensity of life through the year. There are certain periods in which each kind of activity is at its height and other periods when it is practically dormant. The climatic position of the region is responsible for this rhythm, and it is to varying climatic factors within the region that most of the modification of this rhythm is related.

In the vicinity of Auch January and February are the months of least activity. The temperatures of this period of the year are sufficiently low to make undesirable the working of the land, but they are not low enough to force the removal of the animals from pasture. This condition leaves little that can be done about the farm other than the repair of implements. The lack of work results in an increased interest in the fairs and markets of the towns and villages. The Gersois peasant dearly loves a gathering of any sort,⁵¹ and he makes the best of this opportunity. The roads are the living parts of the landscape. It seems as though every person in the land is on his way to or from town.

With the coming of March there is a change. This is the beginning of the season of heaviest rains, and preparations are made to prevent damage to property. The increased precipitation causes a rise in river level, which is continued through April and May. Floods may cover all the lower land of the valleys and may endanger the lives of the animals if they are left in the customary pastures. They are brought to the farm and, if no neighboring land is suitable for pasture, they are fed and closely cared for. Then, too, the land is plowed before the heavier rains fall. Otherwise, the fields, particularly those on clayey soil, are quaggy and impossible to plow. The towns are forgotten. From the first noticeable rise of temperature in March the preparation of the land for crops is the sole end in view for the larger part of the population. In late April or early May oats are planted and shortly thereafter, maize is sown, and attention is given

⁵¹ Caziot, *op. cit.*, p. 331.

to vineyards. Wheat, planted the winter before, brings a green color to the whole land.

Continued farm activity accompanies the marked beginning of summer in late June. There is no further need of keeping the animals close to the farm for feeding. They are turned loose in pastures which have been refreshed by the short period of little use. The crops are well started by the time the rain begins to decrease in amount. With the coming of the dry, hot period of July and August the harvests begin. The wheat has ripened and it is cut and threshed. Throughout the region the constant coughing of the gasoline engines of wheat-threshing machines is to be heard. Some of the farmers still use the old method of driving the oxen round and round on a hardened earth threshing floor and then winnowing the grain in the hot blasts of the *vent d'autan*,⁵² which is at its strongest at this time of year.

The wheat harvest lasts but a relatively short time. There is a hiatus in the farm work and, with almost clocklike precision, the towns take on the exaggerated importance of the January-February season. The land with its ripening crops is slighted. It is almost devoid of human beings.

Late August and September witness another reversal. In rapid succession come the grape, oat, maize, and fruit harvests. Everyone is pressed into service. The country hums and the villages and towns are silent.

Immediately the harvests are done the land is prepared and sown in wheat. The vineyards are looked after, pruned and sprayed, and wine is made. When November comes and the pressing farm work is done, there begins the manufacture of the one specialty of the region. The wine is distilled and made into armagnac. With the completion of this work the year is rounded out, and there comes again the season of increased social life for the whole area.

In all directions from the vicinity of Auch this rhythm of life is varied to a minor degree. The variance is primarily a recognizable function of the setting, although it is in part caused by differences in the distribution of population. To the south and west there is a greater amount of rainfall which results in the changed emphasis of

⁵² The *vents d'autan* are Mediterranean in origin. See de Martonne, E., "Note préliminaire sur le vent d'autan," *Bull. Soc. languedocienne de géog.*, 30: 100-114. 1907; and *idem*, "Contribution à l'étude du vent d'autan (deuxième note)," *ibid.*, 32: 135-157. 1909.

utilization of the land. Likewise toward the south the winters are more severe and the summers are hotter and drier. The winter is sufficiently severe to necessitate the ration feeding of animals. This one item, coupled with a different distribution of population, decreases the importance of town gatherings in the winter life of the inhabitants. They are more completely tied to the farm. The climatic differences also make impossible the cultivation of some of the same crops. The increase in the amount of rainfall is particularly injurious to wheat while the lowered temperature of winter makes the vine a less satisfactory crop. Nevertheless, there is discernible the same type of rhythm of life as that near Auch. The movement of sheep to pasture on the plateau of Lannemezan during the summer months, though of greater magnitude, is essentially the same as the movement of cattle to new pasturage during summer in the center of the Pays du Gers.

CONCLUSION

The rural scene is the only important one and, though it varies from part to part of the region, it is only the result of necessity of detailed adjustment that brings about any difference. The same kind of people live in the same way in all sections. That way is distinct from those of adjoining areas. The way of living in the Pays du Gers is not like the agricultural life of the Garonne lowland, in which fruit cultivation is of primary importance. It is not like the corn-hog-vine economy of the Adour drainage basin to the west, nor is it like the Landes where pastoral life predominates. Likewise the pastoral life of the Pyrenean slopes contrasts sharply with it. Within the Pays du Gers all these various economies are blended to form a rural occupance of the type which lays equal stress upon agriculture and the animal industries. Specialization in commercial production is secondary to sustenance farming.

Thus it is that a small portion of the earth's surface with an associated group of natural phenomena stands out as distinct from the surrounding lands. And upon this small area the items of human occupance are arranged in such a way as to emphasize its individuality. The natural phenomena focus on the small remnant of the plateau of Lannemezan. The occupance phenomena focus upon Auch. The two have been inseparably welded through time to form the present phase of ever-changing landscape of the Central Pyrenean Piedmont of France.

PLATE LXXXI

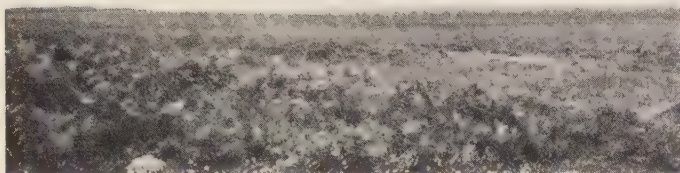


FIG. 1. The plateau of Lannemezan, looking northward toward the dissected and forested edge



FIG. 2. One of the V-shaped valleys at the northern edge of the plateau of Lannemezan



FIG. 3. The middle valley of the Save River in August. The present stream is cutting below the level of the flat valley floor

PLATE LXXXII

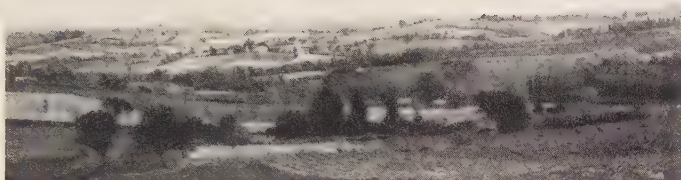


FIG. 1. The gently undulating surface of the northern part of the Pays du Gers



FIG. 2. The canalized Baïse River at Condom, looking north



FIG. 3. Tree and brush growth along one of the major streams

PLATE LXXXIII



FIG. 1. The wooded eastern side of the upper valley of the Baïse River. The extent of the grassland in the valley bottom is very limited, and there are only a few clearings on the valley side



FIG. 2. Pastured woodland near the source of the Baïse River, on the plateau of Lannemezan

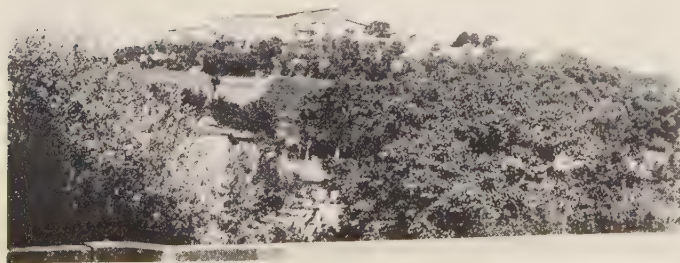


FIG. 3. The town of Lectoure

PLATE LXXXIV



FIG. 1. A *route nationale* in the northwestern part of the Pays du Gers



FIG. 2. Flamerens, a hilltop village in the northeastern part of the Pays du Gers



FIG. 3. Puymaurin, a town on the crest of the steep valley side, in the southern part of the Pays du Gers



FIG. 1

FIG. 1. The town of Auch. The cathedral in the background marks the original site from which the town spread down the valley side and across the flat valley floor



FIG. 2

FIG. 2. The town of Lannemezan

PLATE LXXXVI



FIG. 1. The row of trees along the ridge in the background lines a main highway. The town is Gimont, which is about twenty-five kilometers east of Auch



FIG. 2. Pasture on the flat valley floor



FIG. 3. Cleared valley floor and wooded eastern valley side

